

**Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services**

STATEMENT OF BASIS

**CABOT CORPORATION
CABOT CANAL CARBON BLACK PLANT
CENTERVILLE, ST. MARY PARISH, LOUISIANA
AGENCY INTEREST NUMBER: 19901
ACTIVITY NUMBER: PER19960001
DRAFT PERMIT NO. 2660-00004-V0**

I. APPLICANT:

Company:

Cabot Corporation
P.O. Box 598, Franklin, LA 70538-0598

Facility:

Cabot Canal Carbon Black Plant
272 Cabot Canal Plant Lane, Centerville, St. Mary Parish, Louisiana
Approximate UTM coordinates are 648.00 kilometers East and 3285.00
kilometers North, Zone 15

II. FACILITY AND CURRENT PERMIT STATUS:

Cabot Corporation's Canal Plant (Cabot Canal Plant), is an existing carbon black manufacturing facility that began operations prior to 1969. The Cabot Canal Plant currently operates under Permit No. 2660-00004-01, issued October 26, 1995, and a Prevention of Significant Deterioration (PSD) Permit No. PSD-LA-591, also issued October 26, 1995.

This is the Part 70 operating permit for the facility.

III. PROPOSED PERMIT / PROJECT INFORMATION:

Proposed Permit

A permit application and Emission Inventory Questionnaire were submitted by Cabot Corporation on December 2, 2004, requesting a Part 70 operating permit. Additional information dated April 27, and May 11, 2005, and January 9, 2006 was also received.

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Project description

The Cabot Corporation's Canal Plant (Cabot Canal Plant) uses a modular process to convert a carbonaceous feedstock material into various grades of carbon black in an essentially continuous process.

The process begins with the introduction of fuel, oxidants, water and additives into a reaction zone where pyrolysis (cracking) is used to produce carbon black. Supporting utilities are used to maintain these reactants at proper temperatures, pressures, and flows. The reaction is controlled by varying the temperature and fluid mechanics of the process. The carbon black and reaction by-products are then introduced to a primary separation process where gaseous by-products are removed from the carbon black. The gaseous by-products are collected and either combusted or subjected to additional processing. The recovered carbon black is sent to a secondary separation process.

The following controlling parameters are adjusted to produce different grades of carbon black affecting both physical and chemical conditions: rates; introduction methods and location of reactants and additives; temperatures; geometry; fuel/feedstock composition; additives; reaction volume; residence time; and equipment components

After separation, certain grades are processed further while others are considered to be in their final form and conveyed to storage or packaged for transportation to the customer.

The recovered black is then conditioned and mixed with water and /or additives for densification. It is then subjected to a product processing and degasification unit where more water and additives may be introduced to achieve the final desired form of carbon black. Some intermittent process venting may occur during normal startup and shutdown and during emergency /upset conditions in order to avoid or alleviate potentially unsafe operating conditions.

The process generates off-gas containing particulates, sulfur dioxide, nitrogen oxides, carbon monoxide, hydrogen sulfide, acetylene and other compounds. Entrained carbon particles are collected from the process stream in baghouses. Carbon black is further processed by either wet or dry processes, packed and stored prior to shipment.

Tail gas from the process is combusted to provide heat for process heaters and dryers.

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Rubber-grade carbon black is produced in units CO-3A, CO-5 and CO-6. Industrial grade carbon black is produced in units CS-1 and CS-2. Unit CO-3B is capable of producing both rubber grade and industrial grade carbon black. An incinerator has been constructed since the last permit for Maximum Achievable Control Technology requirements and control toxic air pollutants (TAPs) in the tail gas.

The increase in CO emissions is due to existing unpermitted start-up and shut-down sampling emissions. There are no physical changes or changes in method of operation. Toxic Air Pollutant increases are also due to existing unpermitted start-up and shut-down sampling emissions.

Permitted Air Emissions

Estimated changes in permitted emissions in tons per year are as follows:

Pollutant	Before	After	Change
PM ₁₀	358.09	359.52	+ 1.43
SO ₂	27,098.10	27101.00	+ 2.90
NO _x	1,813.01	1,823.00	+ 9.99
CO	6,048.30	6,774.06	+ 725.76
VOC	449.20	447.05	- 2.15

*Includes carbon disulfide (CS₂), carbonyl sulfide (COS) and hydrodgen cyanide (HCN).

LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):

Pollutant	Before	After	Change
Ammonia*	0.00	<0.001	-
Carbon Disulfide	156.78	166.69	+ 9.91
Carbonyl Sulfide	48.03	52.43	+ 4.40
Dibutyl Phthalate	0.00	0.18	+ 0.18
Hexane	0.00	0.02	+ 0.02
Hydrogen Cyanide	42.77	45.12	+ 2.35
Hydrogen Sulfide*	151.83	168.36	+ 16.53
Nitric Acid*	0.00	<0.01	-
Toluene	0.00	0.10	+ 0.10

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LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):

Pollutant	Before	After	Change
Total	399.41	432.90	+ 33.49
VOC TAPs	247.58	264.54	+ 16.96
*Non-VOC TAPs	151.83	168.36	+ 16.53

Prevention of Significant Deterioration Applicability

On October 26, 1995, a Prevention of Significant Deterioration (PSD) Permit No. PSD-LA-591 was issued to the Cabot Canal Plant. The PSD permit is currently being modified to clarify that the sulfur dioxide emissions limitation is based on an annual average of the weight percentages of sulfur in the feedstock oils, and to reflect the installation of a nitrogen oxides Continuous Emissions Monitoring System (CEMS) on the incinerator stack, Emission Point 999, in place of Oxygen monitoring correlations.

MACT requirements

Cabot Canal Plant is subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) requirements of subpart YY as MACT.

Air Modeling Analysis

Dispersion Model(s) Used: ISCST3 (screen)

Modeling was performed prior to the effective date of the previous permit on October 26, 1995.

Pollutant	Time Period	Calculated Maximum Ground Level Concentration	Louisiana Toxic Air Pollutant Ambient Air Quality Standard or (National Ambient Air Quality Standard {NAAQS})
PM ₁₀	24-Hour	41.20 µg/m ³	(150) µg/m ³
	Annual	7.40 µg/m ³	(50) µg/m ³
SO ₂	3-Hour	560.54 µg/m ³	(1300) µg/m ³
	24-Hour	201.52 µg/m ³	(365) µg/m ³
NO _x	Annual	68.55 µg/m ³	(80) µg/m ³
	Annual	-0.03 µg/m ³	(100) µg/m ³

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General Condition XVII Activities

The facility will comply with the applicable General Condition XVII Activities emissions as required by the operating permit rule. However, General Condition XVII Activities are not subject to testing, monitoring, reporting or recordkeeping requirements. For a list of approved General Condition XVII Activities, refer to Section VIII of the draft Part 70 permit.

Cabot Canal Plant has no listed General Condition XVII Activities.

Insignificant Activities

All Insignificant Activities are authorized under LAC 33:III.501.B.5. For a list of approved Insignificant Activities, refer to Section IX of the draft Part 70 permit.

Regulatory Analysis

This application was reviewed for compliance with the Louisiana Part 70 operating permit program, Louisiana Air Quality Regulations, and NESHAP regulations. NSPS regulations do not apply

The applicability of the appropriate regulations is straightforward and provided in the Facility Specific Requirements Section of the draft permit, or where provided, Tables 2, 3 and 4 of the draft permit. Similarly, the Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are provided in the Facility Specific Requirements Section of the draft permit, or where provided, Tables 2, 3 and 4 of the draft permit.

IV. Permit Shields

There are no permit shields.

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V. Periodic Monitoring

The following table presents Periodic Monitoring requirements contained in this Draft Permit.

Emission Point ID. and Description	Parameter	Frequency	Applicable Regulation
EQT 96 (999 Combusted Tail Gas Stack)	VOC	Annually	Monitor for presence of a leak in accordance with Subpart SS [40 CFR 63.983(b)(1)(i)(B)]
EQT 96 (999 Combusted Tail Gas Stack)	VOC	Once initially, and Annually	Total VOC monitored by 40 CFR 60 Method 21, Appendix A in accordance with Subpart SS [40 CFR 63.983(b)(1)(ii)]
EQT 96 (999 Combusted Tail Gas Stack)	VOC	At the specified frequency	Total VOC monitored by 40 CFR 60 Method 21, Appendix A in accordance with Subpart SS [40 CFR 63.983(b)(2)(ii)]
EQT 96 (999 Combusted Tail Gas Stack)	VOC	At the specified frequency	Total VOC monitored by 40 CFR 60 Method 21, Appendix A in accordance with Subpart SS [40 CFR 63.983(b)(3)(ii)]
EQT 96 (999 Combusted Tail Gas Stack)	Temperature	Continuously	Temperature monitored by temperature monitoring device in accordance with Subpart SS [40 CFR 63.988(C)(1)]

Compliance Assurance Monitoring

40 CFR 64 - Compliance Assurance Monitoring is not applicable to this facility.

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VI. Applicability and Exemptions of Selected Subject Items		
ID No:	Requirement	Notes
EQT 8,11-13,22,23,24,27,44,48,62-65,96	Emission Standards for Particulate Matter [LAC 33:III.1311.B]	DOES NOT APPLY. The burning of fuel for indirect heating where products of combustion do not come into contact with process materials is not subject to this section.
EQT 24,27	Emission Standards for Particulate Matter [LAC 33:III.1311.C]	DOES NOT APPLY. The burning of fuel for indirect heating where products of combustion do not come into contact with process materials is not subject to this section.
EQT 8,11-13,22,23,44,48,62-65	Emission Standards for Particulate Matter [LAC 33:III.1313.C]	DOES NOT APPLY. Reactor (source controlled by filters and scrubbers) does not meet the definition of fuel burning equipment.
EQT 8,11-13,14-18, 29-31,22,23,24,42-48,62-65,84,85 FUG 01	Emission Limitations for Sulfur Dioxide [LAC 33:III.1503.C]	EXEMPT. Units emit less than 250 tons of SO ₂ per year. Record and retain at the site for at least 2 years the data required to demonstrate compliance with or exemption from SO ₂ standards of Chapter 15. Compliance data shall be reported annually in accordance with LAC 33:III.918.
EQT 50-60	Control of Emission of Organic Compounds – Storage of VOCs [LAC 33:III.2103.A]	DOES NOT APPLY. The maximum true vapor pressure of stored liquid is <1.5 psia.
Entire Facility	National Volatile Organic Compound Emission Standards for Consumer and Commercial Products [40 CFR 59]	DOES NOT APPLY. There are no chemicals above the threshold quantity.
EQT 27	Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units [40 CFR 60, Subpart Dc]	DOES NOT APPLY. The Barge Dock Boiler was constructed prior to June 9, 1989.

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VI. Applicability and Exemptions of Selected Subject Items		
ID No:	Requirement	Notes
EQT 27, 50-60, 88,89	New Source Performance Standards (NSPS) General Provisions [40 CFR 60.1 through 60.20]	DOES NOT APPLY. These sources are not affected NSPS stationary sources subject to the provisions of this subpart.
EQT 50-60	NSPS Subpart Kb – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984. [40 CFR 60.110b(b)]	DOES NOT APPLY. No construction /reconstruction/modification since July 23, 1984. Tanks contain liquids with true vapor pressures <1.5 psia.
EQT 88,89	NSPS Subpart Kb – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984. [40 CFR 60.116b(b)]	DOES NOT APPLY. Volume of vessels are <19,800 gallons (<75 m ³).
Entire Facility EQT 24,27,96 FUG 01	National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters. [40 CFR 63, Subpart DDDDD]	DOES NOT APPLY. The boilers or process heaters listed as an affected source in another standard under 40 CFR 63 are not subject to 40 CFR 63 Subpart DDDDD.
Entire Facility	Chemical Accident Prevention Provisions [40 CFR 68]	DOES NOT APPLY. There are no chemicals above the threshold quantity.

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VII. Streamlined Requirements			
Unit or Plant Site	Programs Being Streamlined	Stream Applicability	Overall Most Stringent Program
Cabot Canal – Carbon Black Plant	None	-	-

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VIII. Glossary

Best Available Control Technologies (BACT) - An emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under this part which would be emitted from any proposed major stationary source or major modification which the administrative authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.

Carbon Monoxide (CO) - A colorless, odorless gas which is an oxide of carbon.

Grandfathered Status- Those facilities that were under actual construction or operation as of June 19, 1969, the signature date of the original Clean Air Act. These facilities are not required to obtain a permit. Facilities that are subject to Part 70 (Title V) requirements lose grandfathered status and must apply for a permit.

Hydrogen Sulfide - A colorless inflammable gas having the characteristic odor of rotten eggs, and found in many mineral springs. It is produced by the action of acids on metallic sulfides, and is an important chemical reagent.

Maximum Achievable Control Technology (MACT) - The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

New Source Review (NSR) - A preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants regulated under the Clean Air Act (CAA). NSR is required by Parts C ("Prevention of Significant Deterioration of Air Quality") and D ("Nonattainment New Source Review").

Nitrogen Oxides (NO_x) - Compounds whose molecules consists of nitrogen and oxygen.

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Nonattainment New Source Review (NNSR) - A New Source Review permitting program for major sources in geographic areas that do not meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. Nonattainment NSR is designed to ensure that emissions associated with new or modified sources will be regulated with the goal of improving ambient air quality.

Organic Compound - Any compound of carbon and another element. Examples: Methane (CH₄), Ethane (C₂H₆), Carbon Disulfide (CS₂)

Part 70 Operating Permit- Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit: ≥ 10 tons per year of any toxic air pollutant; ≥ 25 tons of total toxic air pollutants; and ≥ 100 tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

PM₁₀- Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

Potential to Emit (PTE) - The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) - A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

Sulfur Dioxide (SO₂) - An oxide of sulphur.

Title V permit - See Part 70 Operating Permit.

Volatile Organic Compound (VOC) - Any organic compound which participates in atmospheric photochemical reactions; that is, any organic compound other than those which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.